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NEWS 4 Feb 16 TOLINE no longer being updated
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NEWS 6 Apr 23 PRE-1967 REFERENCES NOW SEARCHABLE IN CAPLUS AND CA
NEWS 7 May 07 DGENE Reload
NEWS 8 Jun 10 Published patent applications (A1) are now in USPATFULL
NEWS 9 JUL 13 New SDI alert frequency now available in Derwent's
DSRI and IFCI

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FILE 'MEDLINE' ENTERED AT 14:53:16 ON 16 AUG 2001

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FILE 'USPATEFULL' ENTERED AT 14:53:16 ON 16 AUG 2001
 OR INDEXING COPYRIGHT (C) 2001 AMERICAN CHEMICAL SOCIETY ACS

=> s kcnq4 (s) potassium (s) channel (s) nuclea?

L1 8 KCNQ4 (S) POTASSIUM (S) CHANNEL (S) NUCLEA?

=> dup rem l1

PROCESSING COMPLETED FOR L1

L1 8 DUP REM L1 (8 DUPLICATES REMOVED)

=> s l1 total ixib kwic

L1 ANSWER 1 OF 5 MEDLINE DUPLICATE 1
 ACCESSION NUMBER: 2001247527 MEDLINE
 DOCUMENT NUMBER: 21167757 PubMed ID: 11136320
 TITLE: An ERG channel inhibitor from the scorpion *Buthus eupeus*.
 AUTHOR: Korolkova Y V; Kozlov S A; Lipkin A V; Pluzhnikov H A;
 Hadley J K; Filippov A K; Brown D A; Angelo K; Strckbaek D;
 Jespersen T; Olesen S P; Jensen B S; Grishin E V
 CORPORATE SOURCE: Snemyakin and Ovchinnikov Institute of Biorganic
 Chemistry, Russian Academy of Sciences, Ul.
 Miklukho-Maklaya, 16/10, 117997, GSP-7, Moscow, Russia..
 guly@ibch.ru
 SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Mar 30) 276 (13)
 9868-76.
 Journal code: HIV; 2985121R. ISSN: 0021-9258.
 PUB. COUNTRY: United States
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 OTHER SOURCE: GENEANK-AFI 6813
 ENTRY MONTH: 200103
 ENTRY DATE: Entered STN: 20010317
 Last Updated in STN: 20010519
 Entered Medline: 20010510

AB . . . (1996) FEBS Lett. 384, 277-280). Here we report the cloning,
 expression, and selectivity of BeKm-1. A full-length cDNA of 365
nucleotides encoding the precursor of BeKm-1 was isolated using
 the rapid amplification of cDNA ends polymerase chain reaction technique
 from mRNA. . . amino acid residues. The mature toxin consists of 36
 amino acid residues. BeKm-1 belongs to the family of scorpion venom
potassium channel blockers and represents a new subgroup
 of these toxins. The recombinant BeKm-1 was produced as a Protein A
 fusion
 product. . . partly inhibited the native M-like current in NG108-15 at
 100 nm. The effect of the recombinant BeKm-1 on different K(+) **channels**
channels was also studied. BeKm-1 inhibited hERG1 **channels**
 with an IC(50) of 3.3 nm, but had no effect at 100 nm on hEAG, hSK1,
 rSK2,
 hIK, hBK, KCNQ1 KCNE1, KCNQ2/KCNQ3, **KCNQ4 channels**,
 and minimal effect on rELK1. Thus, BeKm-1 was shown to be a novel
 specific
 blocker of hERG1 **potassium channels**.

L2 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2001 ACS
 ACCESSION NUMBER: 2100742115 CAPLUS

DOCUMENT NUMBER: 133:145918
 TITLE: Cloning of a novel potassium channel protein KCNQ4 gene and its therapeutic uses
 INVENTOR(S): Petrukhin, Konstantin; Taskay, O. Thomas L.; Wang Mettcker, Michael L.
 PATENT ASSIGNEE(S): Merck & Co., Inc., USA
 SOURCE: PCT Int. Appl., 64 pp.
 CODEN: PIXXD1
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000061606	A1	20001019	WO 2000-US9857	20001141

W: CA, JP, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MT, NL, PT, SE

PRIORITY APPLN. INFO.: US 1999-129274 P 19990414

REFERENCE COUNT: 2

REFERENCE(S): (1) Mananura; NeuroReport 2000, V11(9), P2063 CAPLUS
 (2) Wang; Science 1998, V282, P1890 CAPLUS

IT Primers (nucleic acid)

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses (DNA, for screening KCNQ4 gene mutation; cloning of novel potassium channel protein KCNQ5 gene and its therapeutic uses)

L2 ANSWER A OF 1 CAPLUS COPYRIGHT 1999 A1

ACCESSION NUMBER: 133:145918 CAPLUS

DOCUMENT NUMBER: 133:145918

TITLE: Protein and DNA sequences of a novel potassium channel

protein KCNQ4 and the uses thereof in drug screening
 Jentsch, Thomas J.

INVENTOR(S):

PATENT ASSIGNEE(S): Neurosearch A/S, Den.

SOURCE: PCT Int. Appl., 65 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000044786	A1	20000803	WO 2000-DK24	20001119

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CY, CZ, DE, DK, DM, EE, EG, FI, GB, GD, GE, GR, HK, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LI, LR, LS, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, PL, PT, RU, RW, SA, SE, SG, SI, SK, SL, TJ, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, A, BY, BG, KZ, MD, RU, TJ, TZ

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AI, BB, BR, BY, LB, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SF, SG, TH, UG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: DK 1999-76 A 19990126

DK 1999-693 A 19990519

REFERENCE COUNT: 7

REFERENCE(S): (1) Biervert, C; Science 1998, V279, P403 CAPLUS
 (2) Hong-Sheng, W; Science 1998, V282, P1890
 (3) Kubisch, C; Cell 1999, V96(3), P437 CAPLUS
 (6) Univ Utah Res Found; WO 9723598 A 1997 CAPLUS
 (7) Univ Utah Res Found; WO 9921875 A 1999 CAPLUS
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Primers (nucleic acid)

RI: ARG (Analytical reagent use); ANST (Analytical study); USBS (Uses
DNA, for screening **KCNQ4** gene mutation; protein and DNA sequences
sequences of novel **potassium channel protein**
KCNQ4 and uses thereof in drug screening)

IT Probes **nucleic acid**
RI: ARG (Analytical reagent use); ANST (Analytical study); USBS (Uses
for screening **KCNQ4** gene mutation; protein and DNA sequences
of novel **potassium channel protein KCNQ4**
and uses thereof in drug screening)

IT 223139-88-2 286968-09-0
RI: BOC (Biological occurrence); FRP (Properties); THU (Therapeutic use);
BIOL (Biological study); OCCU (Occurrence); USES (Uses)
nucleotide sequence; protein and DNA sequences of novel
potassium channel protein KCNQ4 and uses
thereof in drug screening)

IT 286968-66-9, 37: PN: W00044786 PAGE: 26 unclaimed DNA 286968-66-1, 37:
PN: W00044786 PAGE: 26 unclaimed DNA 286968-66-1, 37: PN: W00044786
PAGE: 26 unclaimed DNA 286968-66-1, 41: PN: W00044786 PAGE: 26
unclaimed
DNA 286968-66-1, 41: PN: W00044786 PAGE: 26 unclaimed DNA
286968-66-1,
42: PN: W00044786 PAGE: 26 unclaimed DNA
FI: PRF (Properties)
unclaimed **nucleotide** sequence; protein and DNA sequences of
a novel **potassium channel protein KCNQ4**
and the uses thereof in drug screening)

L2 ANSWER 4 OF 5 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2000226104 MEDLINE
DOCUMENT NUMBER: 20226104 PubMed ID: 10760300
TITLE: KCNQ4, a K⁺ channel mutated in a form of dominant
deafness,
is expressed in the inner ear and the central auditory
pathway.
COMMENT: Comment in: Proc Natl Acad Sci U S A. 2000 Apr
11;97(9):3786-9
AUTHOR: Kharkovets T; Hancelin J P; Safieddine S; Schweitzer M;
El-Amraoui A; Petit C; Gentsch T J
CORPORATE SOURCE: Centrum für Molekulare Neurobiologie Hamburg, Universitäts-
Hamburg, Martinistraße 51, D-22146 Hamburg, Germany.
SOURCE: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE
UNITED STATES OF AMERICA, (2000 Apr 11) 97(9):3786-9.
Journal code: PV3; 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200005
ENTRY DATE: Entered STN: 20000525
Last Updated on STN: 20000525
Entered Medline: 20000517
AB Mutations in the **potassium channel** gene **KCNQ4**
underlie DFNA2, an autosomal dominant form of progressive hearing loss in
humans. In the mouse cochlea, the transcript has been found exclusively
in
the outer hair cells. By using specific antibodies, we now show that
KCNQ4 is situated at the basal membrane of these sensory cells. In
the vestibular organs, **KCNQ4** is restricted to the type I hair
cells and the afferent calyx-like nerve endings ensheathing these sensory
cells. Several lines of evidence suggest that **KCNQ4** underlies
the I K_v and g(K_v) currents that have been described in the outer and
type I hair cells, respectively, and that are already open at resting
potentials. **KCNQ4** is also expressed in neurons of many, but not
all, **nuclei** of the central auditory pathway, and is absent from
most other brain regions. It is present, e.g., in the cochlear
nuclei, the **nuclei** of the lateral lemniscus, and the

interior cell bodies. This is the first ion channel shown to be specifically expressed in a sensory pathway. Moreover, the expression pattern of **KCNQ4** in the mouse auditory system raises the possibility of a central component in the IPNAL deafness.

L2 ANSWER 6 OF 6 CAPLUS COPYRIGHT: 1999 AND
 ACCESSION NUMBER: 1999:100414 CAPLUS
 DOCUMENT NUMBER: 131:124701
 TITLE: **KCNQ4**, a novel potassium channel subunit expressed in sensory outer hair cells, is mutated in a form of deafness
 AUTHOR(S): Kubisch, Christian; Schneggenburger, Ralf; Friauf, Ewald; Thomas, Lutz; Lüttichmann, Björn; El-Amra, Amir; Marlin, Sandrine; Petit, Christine; Jentsch, Thomas A.
 CORPORATE SOURCE: Zentrum für Molekulare Neurobiologie Hamburg
 SOURCE: Universität Hamburg, Hamburg, D-20246, Germany
 Cell (Cambridge, Mass.) (1999), 96(3), 437-446
 CODEN: CELLE5; ISSN: 0092-8674
 PUBLISHER: Cell Press
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 REFERENCE COUNT: 43
 REFERENCE(S): (1) Barhanin, J; Nature 1996, V384, P78 CAPLUS
 (2) Biervert, C; Science 1998, V279, P403 CAPLUS
 (3) Charlier, C; Nat Genet 1998, V18, P53 CAPLUS
 (4) Chouabe, C; EMBO J 1997, V16, P8472 CAPLUS
 (5) Denoyelle, F; Nature 1998, V393, P319 CAPLUS
 ALL CITATIONS AVAILABLE IN THE RE FORMAT
 IT 223239-55-2 223239-56-3 223239-57-4 223239-58-5 223239-59-6
 223239-60-9 223239-61-0 223239-62-1 223239-63-2 223239-64-3
 223239-65-4 223239-66-5 223239-67-6 223239-68-7 223239-69-8
 RL: PRP Properties:
 (nucleotide sequence; cDNA and genomic sequences of human
KCNQ4, potassium channel expressed in
 sensory outer hair cells, that is mutated in dominant deafness)

=> log y

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
FULL ESTIMATED COST	ENTRY	SESSION
	13.05	13.26

STN INTERNATIONAL LOGOFF AT 14:54:29 ON 16 AUG 2001

09492361results

SEQ ID NO 1

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DEFINITION Sequence 1 from Patent WO0044786.
ACCESSION AK032994
VERSION AK032994.1 GI:10279597
KEYWORDS
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Mammalia; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 bases 1 to 2335
AUTHORS Jentsch, T J.
TITLE Novel potassium channels and genes encoding these potassium
channels
JOURNAL Patent: WO 0044786-A 1 03-AUG-2000;
NEURORESEARCH AS (DK)
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ORIGIN

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Best Local Similarity 100.0%; Pred. No. 0;
Matches 2335; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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 REFERENCE 1 (bases 1 to 2335)
 AUTHORS Kubisch,C., Schroeder,B.C., Friedrich,T., Luetjohann,B.,
 El-Amraoui,A., Marlin,S., Petit,C. and Jentsch,T.J.
 TITLE KCNQ4, a novel potassium channel expressed in sensory outer hair
 cells, is mutated in dominant deafness
 JOURNAL Cell 96 (3), 437-446 (1999)
 MEDLINE 99148276
 REFERENCE 2 (bases 1 to 2335)
 AUTHORS Kubisch,C., Schroeder,B.C., Friedrich,T., Luetjohann,B. and
 Jentsch,T.J.
 TITLE Direct Submission
 JOURNAL Submitted (10-NOV-1998) Zentrum fuer Molekulare Neurobiologie
 Hamburg (ZMNH), University of Hamburg, Martinistrasse 86, Hamburg
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 Eb 1381 GATGGGCATCAAAGACCGCATCCGCATGGGCAGCTCCACAGCGGCGACGGGTCTCTCCAA 1400
 Qy 1441 gcagcagctggccacctcccaacaatgccacacctccccaagcagcgagcaggtgggtgagga 1500
 Eb 1441 GCAGCAGCTGGCACCTCCCAACAATGCCACCTCCCCCAAGCAGCGAGCAGGTGGGTGAGGC 1500
 Qy 1501 caccagccccaccaaggtgcaaaagagctggagcttcaatgaacgcacccgcttcgggga 1560
 Eb 1501 CACCAGCCCCACCAAGGTGCAAAAGAGCTGGAGCTTCAATGACCGCACCCGCTTCGGGGG 1560
 Qy 1561 atctctgagactcaaaaccccgccacctctgctgaggtatgccccctcagagggaagta 1600
 Eb 1561 ATCTCTGAGACTCAAACCCCGCACCTCTGTGTGAGGATGCCCCCTCAGAGGAATAGAGAA 1600
 Qy 1621 ggagaagagctaccagctgtgagctcaggggtggagacacatgacgtctgtgtgaa 1680
 Eb 1621 GGAGAAGAGCTACCAGTGTGAGCTCAGCGTGGACGACATCATCTGTGTGTGAACAAGT 1680
 Qy 1681 catccgctccatcaggtattctcaagttcctgggtggccaaaaggaaattcaaggagacact 1740
 Eb 1681 CATCCGCTCCATCAGGATTCTCAAGTTCCTGGTGGCAGAAAAGAAATTCAGGAGACACT 1740
 Qy 1741 gcgaccgtacgacgtgaaggacgtcattgagcagtaactcagcaggccacctggacatgct 1800
 Eb 1741 GCGACCGTACGACGTGAAGGACGTCATTGAGCACTACTCAGCAGGCCACCTGGACATGCT 1800
 Qy 1821 ggcccggtatcaagagcctgcaaaactcgggtggagcaaaattgtgggtcgjggjcccgggga 1860
 Eb 1821 GGGCCGGATCAAGAGCCTGCAAACTCGGGTGGAGCAAAATTGTGGGTGCGGGGCCCGGGGA 1860
 Qy 1861 caggaaggcccggggagaaggggcgacaaggggccctccgacgcggagggtggtggatgaaat 1920
 Eb 1861 CAGGAAGGCCCGGGGAGAAGGGCGACAAGGGGCCCTCCGACGCGGAGGTGTTGGATGAAAT 1920
 Qy 1921 cagcatgatgggaacgcgtggtcaaggtggagaaagcaggtgcagtcacatgagcacaagct 1980
 Eb 1921 CAGCATGATGGGACGCGTGTCAAGGTGGAGAAAGCAGGTGCAGTCCATGAGCACAAGCT 1980
 Qy 1941 ggacctgctgttggtggtctctattccgctgctgctccgctctgggacacatgggagatggg 2000
 Eb 1941 GGACCTGCTGTGTGGCTTCTATTCCGCGTGGCTCCGCTCTGGACACTCGGGAGATGGG 2000
 Qy 2041 cgcctgtcaagtgccgctgttcgaccccgacatcacctccgactacacacagccctgtgga 2100
 Eb 2041 CGCCGTGCAAGTGCCGCTGTTTCGACCCCGACATCACCTCCGACTACACAGCCCTGTGGA 2100
 Qy 2101 ccacgaggacatctccgtctccgcacagacgctcagcatctccgctcgggtcagcaacca 2160
 Eb 2101 CCACGAGGACATCTCCGTCTCCGCACAGACGCTCAGCATCTCCGCTCGGTCAGCAACAA 2160
 Qy 2161 catggactgagggacttctcagaggcagggcagcacacggccagcccgcgggcctgagcgc 2220
 Eb 2161 CATGGACTGAGGGACTTCTCAGAGGCAGGGCAGCACACGGCCAGCCCCGCGGCCTGAGCGC 2220
 Qy 2221 tccgactgccctctgaggcctccggactcctctcgtaacttgaactcactccctcagjggg 2280
 Eb 2221 TCCGACTGCCCTCTGAGGCCTCCGGACTCCTCTCGTACTTGAACTCACTCCCTCAAGGGG 2280
 Qy 2281 agagagaccacacgcagttattgagctgcctgagtgggcggtggtacgtgctggtggg 2335
 Eb 2281 AGAGAGACCACACGCAGTATTGAGCTGCCTGAGTGGGCGGTGCTACGTGCTGTGGTGG 2335

RESULT 1
 AAA47618
 ID AAA47618 standard; cDNA; 2335 BP.
 XX
 AC AAA47618;
 XX
 I 18-NOV-2000 first entry
 XX
 DE KCNQ4 Potassium channel gene.
 XX
 KW KCNQ4; potassium channel; cardiac arrhythmia; neonatal epilepsy;
 KW deafness; probes; treatment; therapy; transgenic animal; antibody;
 KW agonist; antagonist; tinnitus; hearing loss; neonatal deafness;
 KW presbycusis; affective disorder, Alzheimer's disease; anxiety;
 KW ataxia; cognitive deficits; compulsive behavior; dementia;
 KW depression; Huntington's disease; mania; memory impairment;
 KW motor disorders; neurodegenerative disease; Parkinson's disease;
 KW Pick's disease; psychosis; schizophrenia; spinal cord damage;
 KW stroke; tremor; ds.
 XX
 OS Homo sapiens.
 XX
 FH Key Location/Qualifiers
 FT CDS 83..2170
 FT /*tag= a
 FT /product= KCNQ4 Potassium channel polypeptide
 XX
 FN WC200044786-A1.
 XX
 FD 03-AUG-2000.
 XX
 RF 18-JAN-2000; 2000WC-DK00024.
 XX
 RF 26-JAN-1999; 99DF-0000076.
 RF 19-MAY-1999; 99DF-0000693.
 XX
 FA (NEUR-) NEUROSEARCH AS.
 XX
 FI Jentsch TJ;
 XX
 LF WPI; 2000-548813/50.
 DF P-PSDB; AAB01476.
 XX
 FT Nucleic acids encoding the novel KCNQ4 potassium channel subunit,
 FT useful e.g. for treating tinnitus, deafness, Alzheimer's and
 FT Parkinson's diseases
 XX
 FS Claim 1; Page 43-48; 65pp; English.
 XX
 CC Mutations in 3 known genes of the KCNQ branch of the potassium
 CC channel gene family underlie inherited cardiac arrhythmia's, neonatal
 CC epilepsy and in some cases associated with deafness. KCNQ4 has been
 CC mapped to the DFNA2 locus for autosomal dominant hearing loss, and
 CC a dominant negative KCNQ4 mutation that causes deafness in a DFNA2
 CC pedigree has been identified. KCNQ4 is the first potassium channel
 CC gene underlying non-syndromic deafness. KCNQ4 forms heteromeric
 CC channels with other KCNQ channel subunits, especially KCNQ3.
 CC Nucleotides encoding the KCNQ4 protein and the protein itself may be
 CC used in the prevention, treatment and diagnosis of diseases
 CC associated with inappropriate KCNQ4 expression. The nucleotides may
 CC also be used as DNA probes in diagnostic assays (e.g. polymerase
 CC chain reactions (PCR)) to detect and quantitate the presence of
 CC similar nucleic acid sequences in samples and to identify mutations
 CC within them, and hence which patients may be in need of restorative
 CC therapy. They may also be used to study the expression and function
 CC of KCNQ4 polypeptides and their role in metabolism, for example
 CC through the production of transgenic animals. The KCNQ4 polypeptides

Db 661 ccagggcaacatctcttcgacagtcgcgcgctggcgagcatgcgcttccctgcagatccctggg 701
 Qy 721 catggtgcgcatggaccgcgcggcgccacctggaagctgctgggtcagtggtctataga 761
 Db 721 catggtgcgcatggaccgcgcggcgccacctggaagctgctgggtcagtggtctataga 761
 Qy 781 gcatagcaaggagctgataccgcgcctggtacatccggttccctggtgctctcttccct 821
 Db 781 gcatagcaaggagctgataccgcgcctggtacatccggttccctggtgctctcttccct 821
 Qy 841 ctctcctgggtacctggcgagagaagggaagcccaactccgacttctctctctatagga 881
 Db 841 ctctcctgggtacctggcgagagaagggaagcccaactccgacttctctctctatagga 881
 Qy 901 gctctggtgggggacgattacattgacaaccatcggtctatggtgacaagacaccgcacac 941
 Db 901 gctctggtgggggacgattacattgacaaccatcggtctatggtgacaagacaccgcacac 941
 Qy 961 atggtctgggcagggtcctggtgctggtcttcgccttactgggcacatctcttcttctgcoct 1020
 Db 961 atggtctgggcagggtcctggtgctggtcttcgccttactgggcacatctcttcttctgcoct 1020
 Qy 1021 gccctgccggcatcctaggtccggcttggccctgaaggtccaggagcagcaccggcagaa 1080
 Db 1021 gccctgccggcatcctaggtccggcttggccctgaaggtccaggagcagcaccggcagaa 1080
 Qy 1081 gcacttcgagaagcggaggatgccggcagccaacctcatccaggtgcctggcgctgta 1140
 Db 1081 gcacttcgagaagcggaggatgccggcagccaacctcatccaggtgcctggcgctgta 1140
 Qy 1141 ctccaccgatatgagccgggctacctgacagccacctggtactactatgacagctatctt 1201
 Db 1141 ctccaccgatatgagccgggctacctgacagccacctggtactactatgacagctatctt 1201
 Qy 1201 cccatccttcagagagctggccctcttgtttgagcacgtgcaacggggccgaatggggg 1261
 Db 1201 cccatccttcagagagctggccctcttgtttgagcacgtgcaacggggccgaatggggg 1261
 Qy 1261 cctacggccccctggaggtgcggcgggcgccgggtaccgcagcgagcaccctcccgttaccc 1320
 Db 1261 cctacggccccctggaggtgcggcgggcgccgggtaccgcagcgagcaccctcccgttaccc 1320
 Qy 1321 gcccggtgccacctgccaccggccgggagcagcctcctctgcccctggggaagcagccg 1380
 Db 1321 gcccggtgccacctgccaccggccgggagcagcctcctctgcccctggggaagcagccg 1380
 Qy 1381 gatgggcatcaaagaccgcatccgcatgggcagctcccagcggcgagcgggtccttccaa 1440
 Db 1381 gatgggcatcaaagaccgcatccgcatgggcagctcccagcggcgagcgggtccttccaa 1440
 Qy 1441 gcagcagctggcacctccaacaatgccacctccccaagcagcagcaggtgggtgagge 1500
 Db 1441 gcagcagctggcacctccaacaatgccacctccccaagcagcagcaggtgggtgagge 1500
 Qy 1501 caccagccccaccaaggtgcaaaagagctggagcttcaatgacgcacccggtccgggg 1561
 Db 1501 caccagccccaccaaggtgcaaaagagctggagcttcaatgacgcacccggtccgggg 1561
 Qy 1561 atctctgagactcaaaccgccacctctgctgaggatgcctctccagaggaagttagaga 1621
 Db 1561 atctctgagactcaaaccgccacctctgctgaggatgcctctccagaggaagttagaga 1621
 Qy 1621 ggagaagagctaccagtgtgagctcacggtggacgacatcatgctgctgtgaagacagt 1680
 Db 1621 ggagaagagctaccagtgtgagctcacggtggacgacatcatgctgctgtgaagacagt 1680
 Qy 1681 catccgctccatcaggattctcaagttcctggtggccaaaaggaaattcaaggagacact 1740
 Db 1681 catccgctccatcaggattctcaagttcctggtggccaaaaggaaattcaaggagacact 1740

XX
 PF 10-JAN-1999; WPI-1000548813/50.
 XX
 PF 10-JAN-1999; PSCB-1000548813/50.
 PF 10-MAY-1999; PSCB-1000548813/50.
 XX
 PA NEUR- NEUROSEARCH AS.
 XX
 FI Jentsch TG;
 XX
 IR WPI; 1000-548813/50.
 IR N-PSCB; AAA47619.
 XX
 PF Nucleic acids encoding the novel KCNQ4 potassium channel subunit,
 PF useful e.g. for treating tinnitus, deafness, Alzheimer's and
 PF Parkinson's diseases
 XX
 PS Claim 8; Page 48-51; 65pp; English.
 XX
 CC Mutations in 3 known genes of the KCNQ branch of the potassium
 CC channel gene family underlie inherited cardiac arrhythmia's, neonatal
 CC epilepsy and in some cases associated with deafness. KCNQ4 has been
 CC mapped to the DFNA2 locus for autosomal dominant hearing loss, and
 CC a dominant negative KCNQ4 mutation that causes deafness in a DFNA
 CC pedigree has been identified. KCNQ4 is the first potassium channel
 CC gene underlying non-syndromic deafness. KCNQ4 is the heteromeric
 CC channels with other KCNQ channel subunits, especially, KCNQ1.
 CC Nucleotides encoding the KCNQ4 protein and the protein itself may be
 CC used in the prevention, treatment and diagnosis of diseases
 CC associated with inappropriate KCNQ4 expression. The nucleotides may
 CC also be used as DNA probes in diagnostic assays (e.g. polymerase
 CC chain reactions (PCR)) to detect and quantitate the presence of
 CC similar nucleic acid sequences in samples and to identify mutations
 CC within them, and hence which patients may be in need of restorative
 CC therapy. They may also be used to study the expression and function
 CC of KCNQ4 polypeptides and their role in metabolism, for example
 CC through the production of transgenic animals. The KCNQ4 polypeptides
 CC may be used as antigens in the production of antibodies and to
 CC identify modulators (agonists and antagonists) of KCNQ4 expression
 CC and activity. The anti-KCNQ4 antibodies and KCNQ4 antagonists may
 CC also be used to down regulate KCNQ4 expression and activity. They may
 CC be used in this way to treat tinnitus, loss of hearing (especially
 CC progressive hearing loss, neonatal deafness and presbycusis
 CC (deafness of the elderly)) and disease or adverse conditions of the
 CC central nervous system (CNS) such as affective disorder, Alzheimer's
 CC disease, anxiety, ataxia, CNS damage caused by trauma, stroke or
 CC neurodegenerative illness, cognitive deficits, compulsive behavior,
 CC dementia, depression, Huntington's disease, mania, memory impairment,
 CC memory disorders and dysfunctions, motion disorders, motor disorders,
 CC neurodegenerative diseases, Parkinson's disease, Parkinson-like motor
 CC disorders, phobias, Pick's disease, psychosis, schizophrenia, spinal
 CC cord damage, stroke and/or tremor. Conversely, antisense nucleic acid
 CC molecules may be administered to down regulate KCNQ4 expression by
 CC binding with the cells own KCNQ4 genes and preventing their
 CC expression.
 XX
 SQ Sequence 695 AA;

Query Match 100.0%; Score 3608; DB 21; Length 695;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 695; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAEAPPRPLGLGPPPGDAFRAELVALTAVQSEQGEAGGGGSPFRLGLLGSPLPPGAPLPG 60
 Do 1 maeapprplglgpppgdapraelvaltavqseqgeaggggspfrlglgslpppgaplp 60
 Qy 61 PGSGSGSACGQRSSAAHKFYERLQNWVYNVLERPRGWAFVYHVFIFLLVFSCLVLVSLVST 120
 Do 61 pgsgsgsacgqrrssaahkryrllqnwvynvlerprgwafvyhvfifllvfvslvlsl 120

Qy 181 LGEHQELANEOLLILEFVMIWVFGLEYIVRWWSAGCCCRYRGWQGGPRFRARHPFCUIDFI 181
 Db 181 lgehqelaneollilefvmiwwvfgleyivrwwsagcccryrwgqgrfrfarkpfouidfi 181
 Qy 181 VFWASVAVIAAGTQGNIFATSALRSMRFLQILRMVRNDRRGGTWKLIGSTVYAHSPFLIT 141
 Db 181 vfwasvaviaaagtqgnifatsalrsmrflqilrmvrmdrrgggtwkligsrvyahskelit 141
 Qy 241 AWYIGFLVLIFFASFLVYLAEKDANSDFSSYADSLKXGTITLTTISYCDYTPHTWLPVLA 4
 Db 241 awyigflvliffasflvylaekdandsdfssyadslkxgtitlittisyadktphtwlpvli 4
 Qy 311 AGFALLGISFFALPAGILGSGFALFWJE_HPIHFFHFHFFHMAANLI_AAWHLYIIMKRA 7
 Db 311 agfallgisffalpagilgsgfalfwje_hpihffhfhffhmpaanliqawwlyipstmr 7
 Qy 361 YLTATWYYYDSILPSFRELALLFEHVQRRNGGLRPLEVRRAPVPGAGPSRYPPVATCHR 421
 Db 361 yltatwyyysilpsfrelallfehvqrrngglrplevrrapvpgagpsryppvatchr 421
 Qy 421 PGSTSFPCGESSRMGIKDRIRMGSSQRRRTGPSKQQLAPPTMPTSPSSSEQVGEATSPTKVQ 480
 Db 421 pgstsfpcgessrmgikdrirmgssqrrrtgpskqqlapptmptspssseqvgeatsptkvq 480
 Qy 481 KSWSFNDRTFRASLRLKPRTSADAPSEEVAAEEKSYQCELTVDIMPVKTVIRSIRIL 540
 Db 481 kswsfndtrfraslrlkprtsaedapseevaaeksyqceltvddimpavktvirsiril 540
 Qy 541 KFLVAKRKFKETLRPYDVKDVEIEQYSAGHLDMLGRIKSLQTRVDQIVGRGPGDRKAREKG 600
 Db 541 kflvakrkfketlrpydvkdvieqysaghldmlgrikslqtrvdqivgrgpgdrkarekg 600
 Qy 601 DKGPSDAEVVDEISMMGRVVKVEKQVQSIEHFLDLLLGFYSRCLRSPTSASLGAVQVPLF 660
 Db 601 dkgpsdaeuvvdeismmgrvvkvekqvqsiehfldlllgfysrclrsptsaslgavqvpf 660
 Qy 661 DPDITSDDYHSPVDHEDISVSAQTLISISPSVSTNMD 695
 Db 661 dpditsdyhspvdhedisvsaqtlisirsstnmd 695

RESULT 1
 PCT-US00-09587-4
 ; Sequence 4, Application PC/TUS0009587
 ; GENERAL INFORMATION:
 ; APPLICANT: Merck & Co., Inc.
 ; TITLE OF INVENTION: Novel Human Voltage-Gated Potassium
 ; TITLE OF INVENTION: Channel
 ; FILE REFERENCE: 20430 PCT
 ; CURRENT APPLICATION NUMBER: PCT/US00/09587
 ; CURRENT FILING DATE: 2000-04-10
 ; PRIOR APPLICATION NUMBER: 60/129,274
 ; PRIOR FILING DATE: 1999-04-14
 ; NUMBER OF SEQ ID NOS: 43
 ; SOFTWARE: FastSEQ for Windows Version 4.0
 ; SEQ ID NO 4
 ; LENGTH: 695
 ; TYPE: PRT
 ; ORGANISM: Homo Sapiens
 PCT-US00-09587-4

Query Match 100.0%; Score 3608; DB 1; Length 695;
 Best Local Similarity 100.0%; Pred. No. 2.4e-295;
 Matches 695; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAEAPPFRLGLGPPPGDAPFAELVALTAVQSEQGEAGGGGSPRLGLLGSPLPPGAPLPG 60
 Db 1 MAEAPPFRLGLGPPPGDAPFAELVALTAVQSEQGEAGGGGSPRLGLLGSPLPPGAPLPG 60

Qy 61 PGGSGSAGGPGSSAAHFPYFELQNWYVWLEPFGWAPVTHVFIPLTFSLDNLWIAI 1
 Db 61 PGGSGSAGGPGSSAAHFPYFELQNWYVWLEPFGWAPVTHVFIPLTFSLDNLWIAI 1
 Qy 121 IQEHQELANECLLILEFVMIWVFGLEYIWRVWSAGCCCRYPGWQSRFRFARMPFCVIDFI 181
 Db 121 IQEHQELANECLLILEFVMIWVFGLEYIWRVWSAGCCCRYPGWQSRFRFARMPFCVIDFI 181
 Qy 191 WFWASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRPGGTWLLGSSVWYAHSKELIT 240
 Db 191 WFWASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRPGGTWLLGSSVWYAHSKELIT 240
 Qy 241 AWYIGFLVLIFASFLVYLAENDANSDFSSYADSLWWTITLTTIGYSDKTPHTWLGRVLA 300
 Db 241 AWYIGFLVLIFASFLVYLAENDANSDFSSYADSLWWTITLTTIGYSDKTPHTWLGRVLA 300
 Qy 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMFAANLIQAARLYSTDMSPA 360
 Db 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEKRRMFAANLIQAARLYSTDMSPA 360
 Qy 361 YLTATWYYYDSILPSFFELALLFEHVQPARNGGLPPLNPPAFVPGGASPSYSPVATDHP 420
 Db 361 YLTATWYYYDSILPSFFELALLFEHVQPARNGGLPPLNPPAFVPGGASPSYSPVATDHP 420
 Qy 421 PGSTSFPCGSSRMGIGKDRIRMGSSQPRTPGSKQLAPPTMPTSPSSEQVGEATSPTEKQ 480
 Db 421 PGSTSFPCGSSRMGIGKDRIRMGSSQPRTPGSKQLAPPTMPTSPSSEQVGEATSPTEKQ 480
 Qy 481 FSWSFNDRTFRASLRLFPRTSAEDAPSEEVAAEFQYQCELTVDIMPVKTVPVRSIRIL 540
 Db 481 FSWSFNDRTFRASLRLFPRTSAEDAPSEEVAAEFQYQCELTVDIMPVKTVPVRSIRIL 540
 Qy 541 FFLVAKFKFFETLRPYDVKDVEIQYSAGHLDMLGFIKSLQTFVDQIVGRGPGDRKAREKG 600
 Db 541 FFLVAKFKFFETLRPYDVKDVEIQYSAGHLDMLGFIKSLQTFVDQIVGRGPGDRKAREKG 600
 Qy 601 EFGPSDAEVVDEISMMGPVVVEFQVQSIEHFDLLLGFYSPCLPSGTSASLGAVQVPLF 660
 Db 601 EFGPSDAEVVDEISMMGPVVVEFQVQSIEHFDLLLGFYSPCLPSGTSASLGAVQVPLF 660
 Qy 661 EFDITSYHSPVDHEDISVSAQTLISIRSVSTNMD 695
 Db 661 EFDITSYHSPVDHEDISVSAQTLISIRSVSTNMD 695

RESULT 2

PCT-US00-09587A-4

; Sequence 4, Application PC/TUS0009587A

; GENERAL INFORMATION:

; APPLICANT: Merck & Co., Inc.

; TITLE OF INVENTION: Novel Human Voltage-Gated Potassium

; TITLE OF INVENTION: Channel

; FILE REFERENCE: 20430 PCT

; CURRENT APPLICATION NUMBER: PCT/US00/09587A

; CURRENT FILING DATE: 2000-06-23

; PRIOR APPLICATION NUMBER: 60/129,274

; PRIOR FILING DATE: 1999-04-14

; NUMBER OF SEQ ID NOS: 43

; SOFTWARE: FastSEQ for Windows Version 4.0

; SEQ ID NO 4

; LENGTH: 695

; TYPE: PRT

; ORGANISM: Homo Sapiens

PCT-US00-09587A-4

Query Match 100.0%; Score 3608; DB 1; Length 695;
 Best Local Similarity 100.0%; Pred. No. 2.4e-295;
 Matches 695; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAEAPPPRLGLGPPPGDAPPAELVALTAVQSEQGEAGGGGSPRRLGLLGSPLPPCAPLPG 60
Db 1 MAEAPPPRLGLGPPPGDAPPAELVALTAVQSEQGEAGGGGSPRRLGLLGSPLPPCAPLPG 60
Qy 61 PGSGSGSACGQRSSAAHKRYRRLQNWVYNVLEPRGWAFVYHVFIPLLVFSCLVLSVLST 120
Db 61 PGSGSGSACGQRSSAAHKRYRRLQNWVYNVLEPRGWAFVYHVFIPLLVFSCLVLSVLST 120
Qy 121 PQEHQELANECLLILEFVMIVVFGLEYIVFVWSAGDTPYFCWLGPFVFAFPFV 180
Db 121 PQEHQELANECLLILEFVMIVVFGLEYIVFVWSAGDTPYFCWLGPFVFAFPFV 180
Qy 181 VFWASVAVIAAGTQGNIFATSALRSMRFLQLRMWRMERPGGTWLLGSMVYAHCHELIT 240
Db 181 VFWASVAVIAAGTQGNIFATSALRSMRFLQLRMWRMERPGGTWLLGSMVYAHCHELIT 240
Qy 241 AWYIGFLVLIFASFLVYLAEKDANSDFSSYADSLWWJSTITLTTIGYGDHTPHTWLGFLA 300
Db 241 AWYIGFLVLIFASFLVYLAEKDANSDFSSYADSLWWJSTITLTTIGYGDHTPHTWLGFLA 300
Qy 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEHRRMPAANLIQAAWFLYSTDMSRA 360
Db 301 AGFALLGISFFALPAGILGSGFALKVQEQHRQKHFEHRRMPAANLIQAAWFLYSTDMSRA 360
Qy 361 YLTATWYYYSILPSFRELALLFEHVQPARNGGLRPLEVRRAPVPDGA PSRYPPVATCHR 420
Db 361 YLTATWYYYSILPSFRELALLFEHVQPARNGGLRPLEVRRAPVPDGA PSRYPPVATCHR 420
Qy 421 PGSTSFPCGESSRMGIFDRIRMGSSQRRTGPSKQQLAPPTMPTSPSSEQVGEATSPTKVQ 480
Db 421 PGSTSFPCGESSRMGIFDRIRMGSSQRRTGPSKQQLAPPTMPTSPSSEQVGEATSPTKVQ 480
Qy 481 KSWSFNDTRFRASLRLKPR TSAEDAPSEEVAAEEKSYQCELTWDDIMPAWTVIRSIPI 540
Db 481 KSWSFNDTRFRASLRLKPR TSAEDAPSEEVAAEEKSYQCELTWDDIMPAWTVIRSIPI 540
Qy 541 KELVAKRAFKETLRFYDVKDVEIQYSAGHLDMLGRINSLQTRNDQIVGRGFSRHAPEH 600
Db 541 KELVAKRAFKETLRFYDVKDVEIQYSAGHLDMLGRINSLQTRNDQIVGRGFSRHAPEH 600
Qy 601 DKGPSEADEVVDEISMMGRVVKVEKQVQSI EHKLDLLLFYSRCLRS GTSASLGAVQVPLF 660
Db 601 DKGPSEADEVVDEISMMGRVVKVEKQVQSI EHKLDLLLFYSRCLRS GTSASLGAVQVPLF 660
Qy 661 DPDITS DYHSPVDHEDISVSAQTL SISR SVSTNMD 695
Db 661 DPDITS DYHSPVDHEDISVSAQTL SISR SVSTNMD 695

09492361results

SEQ ID NO 1

RESULT 1
AK01994
DEFINITION AN01994 Homo sapiens cDNA, clone: AK01994, 100% identity to AK01994.1
DEFINITION Sequence 1 from Patent WO/99/000000
ACCESSION AN01994
VERSION AN01994.1 GI:10079999
KEYWORDS
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 2335)
AUTHORS Jentsch, T.J.
TITLE Novel potassium channels and genes encoding these potassium
channels
JOURNAL Patent: WO 0044786-A 1 03-AUG-2000;
NEUROSEARCH AS (DK)
FEATURES
Location/Qualifiers
source 1..2335
organism="Homo sapiens"
db_xref="taxon:9606"
CDS 53..2170
note="KCNQ4"
codon_start=1
protein_id="CAC09957.1"
db_xref="GI:10079999"
translation="MAEAPFPFGLGSPFFSLAPRAELVALTAALF, NAAALWFFP
LGILGSPFPFGAPLPFGSSGNSAJSIPSSAAHFFPFFLWNTNTPHFFWAFTH
VFIFLLVFSLVLSVLSTIQHQELANEJLLILEFNMIVFSLNITATWSA, NIDP
RGWQGRFRFFARKPFCVIDEIVFVASVAVIAAGTQGNIFATSALPSMPFLIILRMFMI
RRGGTWKLLGSVVYAHSHELITAWYIGFLVLIFASFLVYLAELANECSFYACSIKX
GTITLTITIGYDKTPHTWLGRVLAAGFALLGISFFALPAGILGSGFALFVQEQHPQKH
FEFRMPAANLIQAARLYSTDMRAYLTATWYIYDSILPSFRELALLFEHVQAPNG
GLFFLEVRRAVPVDPGAPSRYPVATCHRPGSTSFPCGESSRMGIKDRIRMSSQRTG
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EEVAEEKSYQCELTVDDIMPAVKTVIRSIRILKFLVAKRKFKETLRPY

SEQ ID NO 1 Hybridization

RESULT 9
 AAT85964
 ID AAT85964 standard; cDNA; 1182 BP.
 XX
 AC AAT85964;
 XX
 DT 09-JAN-1998 first entry
 XX
 LE Human K+ channel gene coding sequence.
 XX
 PW Human; neuroblastoma; K+ channel; glioma; probe; diagnosis; detection;
 PW tumour; ds.
 XX
 CS Homo sapiens.
 XX
 FN JF09191882-A.
 XX
 FI 09-JUL-1997.
 XX
 FF 16-JAN-1996; 96JP-0004726.
 XX
 FF 16-JAN-1996; 96JP-0004726.
 XX
 FA NISB \ JAPAN TOBACCO INC.
 XX
 DF WPI; 1997-429182/40.
 DR P-PSDB; AAW14282.
 XX
 PT cDNA encoding new human K+ channel protein - useful for detecting
 PT glioma(s) and tumours
 XX
 PS Claim 3; Page 10-12; 14pp; Japanese.
 XX
 CC This is the nucleotide sequence encoding a novel human K+ channel
 CC protein which is expressed on human glioma cells. The gene was isolated
 CC from a 3' directed cDNA library prepared from human neuroblastoma cell
 CC line CHP134. The screen isolated a clone designated GS008740 whose
 CC insert contained the coding sequence (presented here) and the 5' and 3'
 CC sequences of the gene (AAT85965-6 respectively). Expression of the gene
 CC was detected in neuroblastoma cell lines. Oligonucleotides derived from
 CC the sequence of the K+ channel gene can be used as probes for diagnosing
 CC human gliomas, and in the detection of new tumours.
 CC
 CC
 CC Sequence 1182 BP; 101 A; 372 C; 364 G; 145 T; 0 other;

Query Match 23.1%; Score 539; DB 18; Length 1182;
 Best Local Similarity 73.7%; Pred. No. 3.7e-85;
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 Qy 333 agaactgggtctacaacgtgctggagcggcccgcggtggccttggtctaccacgtct 392
 Db 233 agaatttctctacaacgtgctggagcggccgcgcggctggcgcttcacacacgcct 292
 Qy 393 tcataattttgctgggtcttcagctgctgggtgctgtctgtgctgtccactatccaggagc 452
 Db 293 acgtgttctcctcggttttctcctcgctgctgtgtgtgtttccaccatcaaggagt 352
 Qy 453 accaggaacttgccaacgagtgctctcctcatttgggaattcgtgatgatcgtggttttgc 511
 Db 353 atgagaagagctcggaggggccctctacatcctggaaatcgtggaactatcctcctgtttc 411
 Qy 513 gcttgggagtacatcgtccgggtctgtgtcggcgaggatgctgtgtgtgtatcaggaatcct 571

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RESULT 3
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 DEFINITION Homo sapiens potassium channel (KCNQ2) mRNA, complete cds.
 ACCESSION AF033348
 VERSION AF033348.1 GI:2801451
 KEYWORDS .
 SOURCE human.
 ORGANISM Homo sapiens
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eumetazoa; Mammalia; Eutheria; Primates; Catarrhini; Hominoidea; Homo.
 REFERENCE 2 (bases 1 to 3232)
 AUTHORS Singh,N.A., Charlier,C., Stauffer,D., DuPont,B.R., Leach,R.J., Melis,R., Ronen,G.M., Bjerre,I., Quattlebaum,T., Murphy,J.V., McHarg,M.L., Gagnon,D., Rosales,T.O., Peiffer,A., Anderson,V.E. and Leppert,M.
 TITLE A novel potassium channel gene, KCNQ2, is mutated in an inherited epilepsy of newborns
 JOURNAL Nature Genet. 18 (1), 25-29 (1998)
 MEDLINE 98085864
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 AUTHORS Singh,N.A., Charlier,C., Stauffer,D., DuPont,B.R., Leach,R.J., Melis,R., Ronen,R.M., Bjerre,I., Quattlebaum,T., Murphy,J.V., McHarg,M.L., Gagnon,D., Rosales,T.O., Peiffer,A., Anderson,V.E. and

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Sequence Comparison A

RESULT 3
 AF033348
 LOCUS AF033348 3232 bp mRNA PRI 21-JAN-1998
 DEFINITION Homo sapiens potassium channel KCNQ2 mRNA, complete cds.
 ACCESSION AF033348
 VERSION AF033348.1 GI:2801451
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 Melis,R., Ronen,R.M., Bjerre,I., Quattlebaum,T., Murphy,J.V.,
 McHarg,M.L., Gagnon,D., Rosales,T.C., Peiffer,A., Anderson,V.E. and
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 McHarg,M.L., Gagnon,D., Rosales,T.C., Peiffer,A., Anderson,V.E. and
 Leppert,M.
 TITLE Direct Submission
 JOURNAL Submitted (06-NOV-1997) Human Genetics, University of Utah, 2030E
 15N Room 2100, Salt Lake City, UT 84112, USA
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